Notice of Allowability	Application No.	Applicant(s)	
	09/731,945	WALDROP ET AL.	
	Examiner	Art Unit	
	MATTHEW J. DANIELS	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *the response filed 30 October 2007*.

2. ☒ The allowed claim(s) is/are *13-15,18-27 and 34-57*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date See Continuation Sheet
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

Continuation of Attachment(s) 3. Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date: 10/5/07, 12/14/07, 12/18/07.

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

2. Authorization for this examiner's amendment was given in a telephone interviews with Brett Halperin on 21 December 2007 and 11 January 2008.

The application has been amended as follows:

Claim 13. (Currently Amended) A double vacuum chamber resin infusion method for a preform comprising:

locating a preform on a mold;

sealingly bagging the preform to the mold with an inner bag forming a first vacuum chamber;

sealingly bagging the inner bag to the mold with an outer bag forming a second vacuum chamber;

evacuating the first vacuum chamber;

evacuating the second vacuum chamber with the pressure in the second vacuum chamber being greater than the pressure in the first vacuum chamber; and

infusing a resin into the preform using a vacuum-assisted resin transfer apparatus while maintaining the pressure in the first and second vacuum chambers.

Claim 34. (Currently Amended) A double vacuum chamber resin infusion method for a preform comprising:

locating a preform on a mold;

bagging the preform to the mold with an inner bag forming a first vacuum chamber;

bagging the inner bag to the mold with an outer bag forming a second vacuum chamber;

evacuating the first vacuum chamber such that the first vacuum chamber collapses substantially against the preform;

evacuating the second vacuum chamber with the pressure in the second vacuum chamber being greater than the pressure in the first vacuum chamber and such that the second vacuum chamber collapses substantially against the first vacuum chamber; and

infusing a resin into the preform using a vacuum-assisted resin transfer apparatus.

Claim 54. (Currently Amended) A method for infusing with resin a preform disposed on a mold, the method comprising:

locating the preform on a mold;

forming a redundant double-bag arrangement by:

disposing an inner bag over the perform;

sealing the inner bag to the mold to form an inner vacuum chamber defined by the inner bag and the mold;

disposing an outer bag over the inner bag; and

sealing the outer bag to the mold to form an outer vacuum chamber defined by the outer bag, the inner bag, and the mold;

evacuating the vacuum chambers such that the outer vacuum chamber has a pressure greater than a pressure in the inner vacuum chamber and the bags provide a caul effect with respect to the preform; and

infusing resin into the preform when the vacuum chambers are evacuated such that the inner bag is substantially prevented from relaxing behind a wave front of resin when resin is infused into the preform.

Allowable Subject Matter

3. Claims 13-15, 18-27, 34-57 are allowed.

4. The following is an examiner's statement of reasons for allowance:

The prior art does not teach or fairly suggest the subject matter of Claims 13-15, 18-27, and 34-57 as amended, and in particular, does not provide the step of evacuating the second vacuum chamber such that the pressure is greater than the pressure in the first vacuum chamber in combination with the other recited steps.

A decision on appeal was mailed in this case on 29 March 2006 in which a rejection made under 35 USC 103(a) over Johnson (USPN 4132755) was affirmed. The appeal did not consider the issue of relative pressures in the first and second vacuum chambers. Johnson was relied upon for teaching of two vacuum chambers) separated by a perforated sheet (9/8/05 Answer, Page 3). By teaching a perforated sheet or film with a second covering sheet, Johnson was interpreted to provide a first vacuum chamber and second vacuum chamber. However, because the perforations create fluid communication between the chambers of Johnson, Johnson

cannot teach or fairly suggest that they should be evacuated such that the pressure in the second vacuum chamber is greater than the pressure in the first vacuum chamber.

Lang (USPN 6406659) was also relied upon previously for teaching of two vacuum chambers (Fig. 8, items 185, 189). However, Lang provides a lower pressure (higher vacuum) between the first and second vacuum chambers. This is the opposite of the instant invention, which requires a greater pressure in the second vacuum chamber (which seals the inner bag to the mold). Lang provides the lower pressure between the first and second vacuum chambers in order to conform the inner (first) chamber to a structure which allows creation of resin channels which provide for distribution of resin. See Lang, Fig. 10, item 203. Providing the pressure ratio of the instant invention would impede formation of the resin channels (203), and therefore would destroy the objective of Lang. Therefore, because Lang provides a pressure ratio in the first and second vacuum chambers that is the opposite of the instant invention, Lang does not teach or fairly suggest that the vacuum chambers should be evacuated such that the pressure in the second vacuum chamber is greater than the pressure in the first vacuum chamber.

Brittles (New Developments in Resin Transfer Moulding) also provides a double vacuum bag arrangement. See Figure 1, page 13. However, Brittles, like Lang, teaches that the pressure is lower in the second vacuum bag. See Page 4, lines 20-23, which states "Running a high outer vacuum (in comparison with the mould cavity vacuum) ensures that any air which ingresses is drawn out of the peripheral vacuum channel with no prospect of it entering the mould cavity." In other words, the "high outer vacuum" produces a lower pressure within the second vacuum chamber, which is the opposite of the claimed invention. This lower pressure within the second vacuum chamber is taught by Brittles specifically for the purpose of eliminating air ingress.

Therefore, Brittles is interpreted to teach away from the claimed invention, which provides the opposite pressure ratio.

Therefore, the prior art does not teach or fairly suggest the pressure ratio now claimed in combination with the other limitations of the independent claims.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW J. DANIELS whose telephone number is (571)272-2450. The examiner can normally be reached on Monday - Friday, 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MJD 1/20/08

MJD

CHRISTINA JOHNSON
SUPERVISORY PATENT EXAMINER